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CASE REPORT

Aorta – Left Renal Vein Fistula: an Unusual Complication of an Abdominal Aortic Aneurysm

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Introduction

Aortic aneurysms account for 10–15% of the clinical workload of the vascular surgeon. With increasing size the risk of an aneurysm rupturing is quoted as being 10–30%. A minority of aneurysms present with erosion into the duodenum, adjacent viscera and erosion into other vascular structures.[1]

We report a case where the aneurysm ruptured into a retro-aortic left renal vein.

Case History

A 64-year-old male patient presented with a 36 h history of pain in his left loin. Investigations revealed that he had microscopic haematuria and a non-functioning, enlarged left kidney on intravenous pyelography (Fig. 1). A contrast enhanced CT scan of his abdomen showed a 9.4 cm abdominal aortic aneurysm with no evidence of a leak. There was a retro-aortic vascular structure, which communicated with the aortic lumen (Fig. 2). During surgery the left renal vein was not identified in a preaortic location. On opening the aneurysm there was torrential venous bleeding. Digital compression of the bleeding vessel revealed a left renal vein in a retro-aortic location. The defect was oversewn with prolene and reconstruction was with a straight 18 mm-tube graft of Dacron. Postoperatively his renal function returned to normal.

Fig. 1. 30 min post-excretion film from an IVP demonstrating absent excretion from an enlarged left kidney (arrows). There is normal excretion from the right kidney.

Discussion

A rare complication of an aortic aneurysm is the aorto left renal vein fistula. The first report was by Lord *et al*. in 1964[2] and, including this case, only 17 cases have been reported on in the world literature.[3] There appears to be a clear-cut clinical syndrome of abdominal pain, abdominal aortic aneurysm, haematuria

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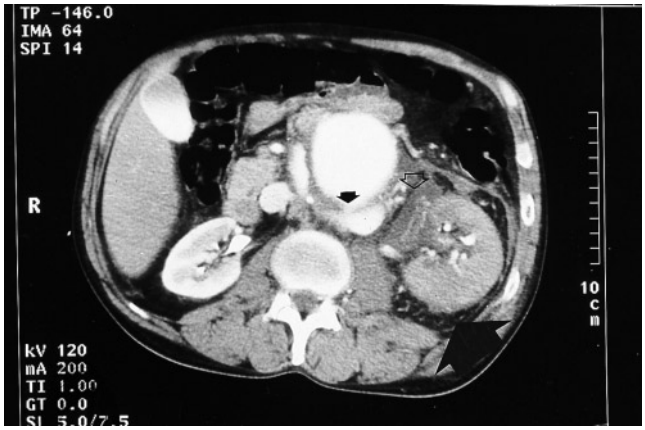

Fig. 2 Axial section from a dynamically enhanced spiral CT scan at the level of the renal hila. An arteriovenous fistula is seen between the aorta and retroaortic left renal vein (small black arrow). The left kidney is enlarged and shows poor parenchymal enhancement. A fluid collection is seen medial to the left kidney (large open arrow) with thickening of the peri-renal fascia (large black arrow) and streaking of the peri-renal fat.

and a silent left kidney.[3] Mansour *et al*.[3] reviewed 16 cases. His observations are summarised below:

Abdominal mass	63%
Pain	81%
Bruit	73%
CHF	19%
Haematuria	100%
Proteinuria	50%
IVP (left kidney)	100% not visualised and usually enlarged
L-renal vein position	Retroaortic in 94% (15/16)

In contrast to the patient with an aortocaval fistula, signs of congestive cardiac failure are absent, presumably due to the fact that the aneurysm compresses the left renal vein and diminishes the size of the arteriovenous shunt. The haematuria that occurs is due to venous hypertension and always settles with closure of the fistula. Renal impairment is present in over 85% of cases[3] and is reversible with correction of the arteriovenous fistula.

Preoperative diagnosis should be the ideal, though very often it is not thought of until torrential bleeding is encountered on opening the aneurysm sac. The combination of the clinical syndrome and features on contrast enhanced CT scanning should prepare the operating surgeon for this encounter. If this anomaly is diagnosed preoperatively, the renal vein can be approached on either side of the aneurysm and ligated. This option should be used with caution as it increases the incidence of postoperative renal complications.[4]

The left renal vein is a landmark used by all vascular surgeons during aortic surgery. Appreciation of the congenital anomalies of the renal vein[5] will allow the operating surgeon the opportunity of performing complication free surgery.

Conclusion

A patient with an abdominal aortic aneurysm presenting with atypical signs should be carefully examined for clues as to the exact nature of the problem. Signs of renal venous hypertension (haematuria, proteinuria and abnormal renal function tests) combined with the features of a non-functioning left kidney, should raise the suspicion of an aorto left renal vein fistula.

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